CLAIMS

1. A method for operating a fuel cell power generation system having a reforming section for reforming a raw material fuel to produce reformate; a combustion section for burning the raw material fuel to heat the reforming section; a carbon monoxide reduction section for reducing a content of carbon monoxide in the reformate to produce carbon monoxide reduced gas; and a fuel cell which uses the carbon monoxide reduced gas as fuel gas, the method comprising:

a first preheating process of supplying the raw material fuel to the combustion section to heat the reforming section to a predetermined temperature;

a second preheating process, following the first preheating process, including the steps of stopping the supply of the raw material fuel to the combustion section, supplying the raw material fuel to the reforming section to produce reformate, and introducing the reformate to the carbon monoxide reduction section to heat the carbon monoxide reduction section; and

a power generation process, after the second preheating process, of introducing the carbon monoxide reduced gas generated in the carbon monoxide reduction section to the fuel cell to generate electric power.

2. The method for operating a fuel cell power generation system according to Claim 1, wherein process flow proceeds from the second preheating process to the power generation process when a temperature of the carbon monoxide reduction section becomes equal to or higher than a predetermined value.

3. A method for operating a fuel cell power generation system having a raw material fuel supply section for supplying a raw material fuel; a reforming section for reforming the raw material fuel to produce reformate; a carbon monoxide reduction section for reducing a content of carbon monoxide in the reformate to produce carbon monoxide reduced gas; a fuel cell which uses the carbon monoxide reduced gas as fuel gas; and a combustion section for burning off gas from the fuel cell to heat the reforming section, the method comprising:

a reforming section temperature comparing process including the steps of detecting a temperature in the reforming section and comparing the detected temperature with predetermined first and second temperatures;

a current decreasing process for decreasing an output current from the fuel cell when the detected temperature is equal to or lower than the first temperature in the reforming section temperature comparing process and maintaining the output current for a predetermined time period after the output current has been decreased; and

a current increasing process of increasing the output current from the fuel cell when the detected temperature is equal to or higher than the second temperature in the reforming section temperature comparing process and maintaining the output current for a predetermined time period after the output current has been increased.

4. The method for operating a fuel cell power generation system according to Claim 3, further comprising:

a fuel increasing process of increasing the supply amount

of the raw material fuel from the raw material fuel supply section when a number of consecutive times the current decreasing process has been carried out reaches a predetermined value; and

a fuel decreasing process of decreasing the supply amount of the raw material fuel from the raw material fuel supply section when a number of consecutive times the current increasing process has been carried out reaches a predetermined value.

5. A fuel cell power generation system, comprising:

a raw material fuel supply section for supplying a raw material fuel;

a reforming section for reforming the raw material fuel to produce reformate;

a carbon monoxide reduction section for reducing a content of carbon monoxide in the reformate to produce carbon monoxide reduced gas;

a fuel cell which uses the carbon monoxide reduced gas as fuel gas;

a combustion section for burning the raw material fuel, the carbon monoxide reduced gas or off gas from the fuel cell to heat the reforming section;

a passage through which the raw material fuel is supplied to the combustion section;

a passage through which the raw material fuel is supplied to the reforming section;

a passage through which the carbon monoxide reduced gas is supplied to the fuel cell;

a passage through which the carbon monoxide reduced gas

is supplied to the combustion section;

a passage through which the off gas from the fuel cell is supplied to the combustion section;

a first passage-switching means for switching between the passage through which the raw material fuel is supplied to the combustion section and the passage through which the raw material fuel is supplied to the reforming section; and

a second passage-switching means for switching between the passage through which the carbon monoxide reduced gas is supplied to the fuel cell and the passage through which the carbon monoxide reduced gas is supplied to the combustion section.

6. The fuel cell power generation system according to Claim 5, further comprising:

a reforming section temperature detector for detecting a temperature in the reforming section;

a carbon monoxide reduction section temperature detector for detecting a temperature in the carbon monoxide reduction section; and

a control device having

a storage section for storing first, second and third temperatures to be compared with the temperature detected by the reforming section temperature detector and a fourth temperature to be compared with the temperature detected by the carbon monoxide reduction section temperature detector, and

a control section which, at start-up, conducts control to carry out the steps of stopping supply of the raw material fuel to the combustion section, supplying the raw material fuel to the reforming section to produce reformate,

and introducing the reformate to the carbon monoxide reduction section to heat the carbon monoxide reduction section when the temperature detected by the reforming section temperature detector becomes equal to or higher than the third temperature after supplying the raw material fuel to the combustion section, and the step of introducing the carbon monoxide reduced gas produced in the carbon monoxide reduction section to the fuel cell to start power generation when the temperature detected by the carbon monoxide reduction section temperature detector becomes equal to or higher than the fourth temperature; and which, during normal operation, conducts control to carry out the steps of decreasing an output current from the fuel cell and maintaining the output current for a predetermined time period after the step of decreasing the output current when the temperature detected by the reforming section temperature detector is equal to or lower than the first temperature, the steps of increasing the output current from the fuel cell and maintaining the output current for a predetermined time period after the step of increasing the output current when the temperature detected by the reforming section temperature detector is equal to or higher than the second temperature, and the steps of increasing or decreasing supply amount of the raw material fuel from the raw material fuel supply section when a number of consecutive times the output current has been decreased or increased reaches a predetermined value.